Notice of Allowability	Application No. 09/892,611	Applicant(s) CHASKAR ET AL.	
	Examiner Douglas B. Blair	Art Unit 2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *The Appeal Brief filed on 5/1/2007*.

2. ☒ The allowed claim(s) is/are *10-45*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date See Continuation Sheet
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Andrew Caldwell

ANDREW CALDWELL
SUPERVISORY PATENT EXAMINER

Continuation of Attachment(s) 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 7/27/2007 and 10/5/2006.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ross Dannenberg (Reg. No. 49,024) on August 20th, 2007.

The claims have been amended as indicated on the following page:

Listing of Claims:

10. (Currently Amended) ~~In a mobile terminal, a~~ A method ~~of facilitating a mobile Internet Protocol (IP) handoff from a source access router to one of a plurality of potential target access routers, the method~~ comprising ~~the steps of~~:

~~(1)~~ a mobile terminal detecting entry into an area served by two or more of the a plurality of potential target access routers;

~~(2)~~ the mobile terminal transmitting an address of the a source access router from the mobile terminal to one or more of the potential target access routers; and

~~(3)~~ performing ~~an~~ a mobile Internet Protocol (IP) handoff operation from the source access router to one of the plurality of potential target access routers on the basis of capability information received from one or more of the plurality of potential target access routers.

11. (Currently Amended) The method of claim 10, wherein performing the mobile IP handoff operation comprises the mobile terminal ~~step (3) is performed in the mobile terminal by~~ selecting a target access router on the basis of bandwidth capabilities required by the mobile terminal.

12. (Currently Amended) The method of claim 10, wherein performing the mobile IP handoff operation comprises ~~step (3) is performed by~~ the source access router performing the handoff on the basis of capability information received by the source access router from the one or more plurality of potential target access routers.

13. (Currently Amended) The method of claim 10, wherein performing the mobile IP handoff operation ~~step (3)~~ comprises ~~the step of~~ performing the IP handoff to one of the plurality of potential target access routers that best matches capabilities required by the mobile terminal.

14. (Currently Amended) The method of claim 10, wherein performing the mobile IP handoff operation ~~step (3)~~ is performed independently of any voice-channel handoff operation that is also supported by the mobile terminal.

15. (Currently Amended) A method ~~of sharing capability information in a mobile communication network for use in making handoff decisions among access routers,~~ comprising ~~the steps of~~:

~~(1)~~ detecting in a mobile communication network a condition that a mobile terminal presently served by a first access router is entering an area served by a second access router;

~~(2)~~ transmitting a network address of the first access router from the mobile terminal to the second access router; and

~~(3)~~ exchanging capability information between the first access router and the second access router, such that each access router learns capabilities of the other access router.

16. (Currently Amended) The method of claim 15, further comprising ~~the step of~~:

~~(4)~~ using the exchanged capability information ~~from step (3)~~ to make a handoff decision for a mobile IP terminal.

17. (Currently Amended) The method of claim 15, wherein exchanging comprises ~~step (3) is performed by~~ transmitting an IP packet from the second access router to the first access router requesting capability information and receiving an IP packet from the first access router containing capability information describing capabilities of the first access router.

18. (original) The method of claim 15, wherein the capability information comprises a bandwidth supported by one of the routers.

19. (original) The method of claim 15, wherein the capability information comprises dynamic loading conditions associated with one of the routers.

20. (original) The method of claim 15, wherein the capability information comprises security schemes supported by one of the routers.

21. (original) The method of claim 15, wherein the capability information comprises the geographic location of one of the access routers.

22. (original) The method of claim 15, wherein the capability information comprises signal transmission technologies supported by a base station associated with one of the access routers.

23. (original) The method of claim 15, wherein the capability information comprises a cost of access using one of the access routers.

24. (Currently Amended) The method of claim 15,

wherein detecting ~~step (1)~~ comprises ~~the step of~~ detecting a condition that the mobile terminal is entering an area served by at least two potential target access routers;

wherein exchanging ~~step (3)~~ comprises ~~the step of~~ exchanging information concerning both of the at least two potential target access routers; and

further including ~~the step of~~ selecting one of at least two potential target access routers on the basis of the capability information exchanged ~~in step (3)~~.

25. (Currently Amended) The method of claim 15, further comprising ~~the step of~~:

~~(4)~~ purging capability information of the first access router if no handoffs from the first access router have been detected within a predetermined time period.

26. (Currently Amended) The method of claim 16, wherein purging ~~step (4)~~ comprises ~~the step of~~ selecting an optimum target router on the basis of a predetermined policy.

27. (original) The method of claim 26, wherein the policy specifies that a lowest cost access router should be selected.

28. (Currently Amended) The method of claim 15, further comprising ~~the step of~~:

~~(4)~~ redirecting one or more mobile terminals away from a loaded access router to a less loaded access router on the basis of exchanged capability information ~~obtained as a result of step (3)~~.

29. (Currently Amended) The method of claim 15, wherein detecting ~~step (1)~~ comprises ~~the step of~~ detecting that the mobile terminal is entering an area served by at least two potential target access routers, and further comprising ~~the step of~~:

~~(4)~~ selecting one of the two potential target access routers on the basis of a best match between a capability dictated by an application program executing on the mobile terminal and the capabilities of the two potential target access routers.

30. (Currently Amended) A method ~~of handing off a mobile terminal in a mobile IP network comprising a plurality of access routers each associated with a service area, the method~~ comprising ~~the steps of~~:

~~(1)~~ receiving a request to initiate a handoff operation for a mobile terminal in ~~the~~ a mobile IP network, said mobile IP network comprising a plurality of access routers each associated with a service area;

~~(2)~~ finding an optimal access router to receive the handoff operation for the mobile terminal by evaluating capability information for a plurality of access routers, wherein the capability information was previously obtained by exchanging information among access routers on the basis of source access router IP address information transmitted by one or more mobile terminals in the mobile IP network, and wherein said exchanged information comprises capability information; and

~~(3)~~ effecting the handoff operation to the optimal access router.

31. (Currently Amended) The method of claim 30, wherein finding an optimal access router ~~step (2)~~ comprises ~~the step of~~ comparing capability requirements associated with the mobile terminal ~~in step (1)~~ with dynamic capability information associated with each of the plurality of access routers.

32. (Currently Amended) The method of claim 30, wherein finding an optimal access router ~~step (2)~~ comprises ~~the step of~~ comparing bandwidth requirements of the mobile terminal with bandwidth capabilities of each access router.

33. (Currently Amended) The method of claim 30, wherein finding an optimal access router ~~step (2)~~ comprises ~~the step of~~ selecting an access router on the basis of the cost of access.

34. (Currently Amended) The method of claim 30, wherein finding an optimal access router ~~step (2)~~ comprises ~~the step of~~ selecting an access router on the basis of a security scheme.

35. (Currently Amended) ~~A mobile terminal adapted to participate in handoff decisions in a mobile IP network comprising a plurality of access routers,~~ An apparatus comprising:

a transmit/receive circuit capable of transmitting and receiving digital data within ~~the~~ a mobile IP network, said mobile IP network comprising a plurality of access routers;

a mobile IP handoff processing circuit coupled to the transmit/receive circuit, wherein the mobile IP handoff processing circuit transmits a network address of a first access router in the mobile IP network to a second access router in the mobile IP network, and

a capabilities storage area reflecting capabilities needed by the mobile terminal, wherein the mobile IP handoff processing circuit transmits one or more capabilities stored in the capabilities storage area to an access router in the mobile IP network as part of a handoff decision process.

36. (Canceled)

37. (Currently Amended) The apparatus ~~mobile terminal~~ of claim 35, wherein the mobile IP processing circuit transmits a bandwidth requirement that is dependent on an application that is presently executing on the mobile terminal.

38. (Currently Amended) The apparatus ~~mobile terminal~~ of claim 35, further comprising a signal strength detector coupled to the transmit/receive circuit and to the mobile IP handoff processing circuit, wherein the mobile IP handoff processing circuit in response to detecting that signal strength has dropped below a threshold, initiates a handoff process within the mobile IP network.

39. (Currently Amended) An apparatus comprising: ~~access router for use in a mobile IP network having a plurality of access routers each of which routes IP packets among mobile terminals in a service area, comprising~~

a processor that executes computer-readable ~~instructions~~ instructions, and

memory storing the computer-readable instructions for performing ~~the steps of~~ a method comprising:

~~(1)~~ in a mobile IP network having a plurality of access routers each of which routes IP packets among mobile terminals in a service area, receiving from a mobile terminal a network address of another access router in communication with the mobile terminal;

~~(2)~~ storing the network address into a capabilities map that defines capabilities of geographically proximate access routers; and

~~(3)~~ using the stored network address to make a handoff decision concerning a second mobile terminal in the mobile IP network.

40. (Currently Amended) The apparatus ~~access router~~ of claim 39, wherein the ~~processor further executes computer-readable instructions that perform the step of~~ method further comprises:

~~(4)~~ exchanging capabilities information with the another access router, such that the ~~access router~~ apparatus and the another access router become aware of the others' capabilities on the basis of the network address received from the mobile terminal.

41. (Currently Amended) The apparatus ~~access router~~ of claim 40, wherein the processor executes computer-readable instructions that exchange bandwidth capacity information between the ~~access router~~ apparatus and the another access router, wherein the instructions ~~in step (3)~~ are used to select an access router on the basis of the bandwidth capacity information.

42. (Currently Amended) The apparatus ~~access router~~ of claim 40, wherein the processor executes computer-readable instructions that exchange dynamic loading information between the

~~access router~~ apparatus and the another access router, wherein the instructions ~~in step (3)~~ are used to select an access router on the basis of the dynamic loading information.

43. (Currently Amended) The apparatus ~~access router~~ of claim 40, wherein the processor executes computer-readable instructions that make a handoff decision concerning a second mobile terminal in the mobile IP network on the basis of a policy stored in the ~~access router~~ apparatus.

44. (Currently Amended) The apparatus ~~access router~~ of claim 43, wherein the policy results in selection of an access router on the basis of access cost.

45. (Currently Amended) The apparatus ~~access router~~ of claim 40, wherein the processor executes computer-readable instructions that make a handoff decision by comparing capability requirements received from a second mobile terminal with capability information previously obtained ~~in step (4)~~.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: The prior art was not shown teach or suggest a mobile terminal that transmits an address of a source access router from the mobile terminal to one or more of the potential target access routers in order to establish an access router handoff based on the capability information of the access routers as claimed in each of the independent claims. None of the cited references were found to teach a mobile terminal that sends address information about its previous access router connection to potential access routers after a handoff.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas B. Blair whose telephone number is (571) 272-3893. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (571) 272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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